

Atty. Dkt. No. EPI3004B
(Formerly 310098.401C1)

THE CLAIMS

Applicants points out that claims 32-35, and 71-72 have been presently cancelled, while claims 42, 53, 55, 56, 58 and 60 have been presently amended.

Claims 1-31 (cancelled).

Claims 32-35 (presently cancelled)

Claims 36-41 (cancelled).

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42. (Presently amended) A composition for delivery of a biological agent to a basolateral factor of an epithelial surface, said composition comprising a targeting molecule linked to at least one biological agent, wherein said targeting molecule comprises a J chain or portion thereof and the CH2 and CH3 domains of IgA or IgM (that specifically binds to a basolateral factor), wherein said targeting molecule does not comprise a full-length immunoglobulin, and wherein said biological agent is not native to the targeting molecule and is not iodine.

43. (Previously presented) The composition of claim 42 wherein said targeting molecule is covalently linked to said at least one biological agent.

44. (Previously presented) The composition of claim 43, wherein said targeting molecule is covalently linked via at least one cysteine residue of the targeting molecule.

45. (Previously presented) The composition of claim 43, wherein said targeting molecule is covalently linked via a peptide bond.

46. (Previously presented) The composition of claim 43 wherein said targeting molecule is linked to said at least one a biological agent via a phosphodiester bond.

47. (Previously presented) The composition of claim 42 wherein said targeting molecule is noncovalently linked to said at least one biological agent.

48. (Presently amended) The composition of claim 42 wherein said targeting molecule comprises amino acid sequence selected from SEQ ID NOS: 114, 115, 116, 117, 118, or 119.

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49. (Previously presented) The composition of claim 42 wherein said targeting molecule comprises the amino acid sequence encoded by nucleotides 1-414 of SEQ ID NO:7.

50. (Previously presented) The composition of claim 42 wherein said targeting molecule comprises the amino acid sequence encoded by nucleotides 1-213 of SEQ ID NO:8.

F 51. (Previously presented) The composition of claim 42 wherein said targeting molecule comprises the amino acid sequence encoded by nucleotides 1-282 of SEQ ID NO:13.

52. (Previously presented) The composition of claim 42 wherein said targeting molecule contains at least four peptide domains having β -sheet character, separated by domains lacking β -sheet character.

53. (Presently amended) The composition of claim 49 wherein said targeting molecule comprises amino acid sequence selected from SEQ ID NOS:120, 121, 122, 123, or 124.

54. (Previously presented) The composition of claim 42 wherein said targeting molecule further comprises a linear N-terminal domain.

55. (Presently amended) The composition of claim 54 wherein said N-terminal domain comprises amino acid sequence selected from SEQ ID NOS:125, 126, 127, 128, or 129 or Asn Lys.

56. (Presently amended) The composition of claim 42 wherein said targeting molecule ~~[further]~~ comprises (a) the C-terminal domain of a J chain.

57. (Previously presented) The composition of claim 56 wherein said C-terminal domain comprises a linear peptide having β -sheet character.

58. (Presently amended) The composition of claim 57 wherein said linear peptide comprises an amino acid sequence selected from SEQ ID NOS: 130, 131, 132, 133, or 134.

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59. (Previously presented) The composition of claim 56 wherein said C-terminal domain comprises a covalently closed loop.

60. (Presently amended) The composition of claim 59 wherein said covalently closed loop comprises an amino acid sequence selected from SEQ ID NOS: 135, 136, 137, 138, 139 or 140.

61. (Previously presented) The composition of claim 42, wherein said targeting molecule comprises an amino acid sequence selected from the group consisting of SEQ ID NOS: 1, 2, 3, 4, 5, and 6.

62. (Previously presented) The composition of claim 42, wherein said biological agent is selected from the group consisting of enzymes, antibodies, single chain antigen binding proteins, antigen combining sites, nucleic acids, carbohydrates and lipids.

63. (Previously presented) A pharmaceutical composition for delivery of a biological agent to a basolateral factor of an epithelial surface, comprising the composition of claim 42 and a pharmaceutically acceptable carrier.

64. (Previously presented) The composition of claim 42, wherein said targeting molecule is linked to at least one biological agent via a substrate for an intracellular or extracellular enzyme associated with or secreted from an epithelial barrier.

65. (Previously presented) The composition of claim 64, wherein said enzyme is selected from the group consisting of proteases, glycosidases, phospholipases, esterases, hydrolases, and nucleases.

66. (Previously presented) The composition of claim 42, wherein said targeting molecule is linked to at least one biological agent via an amino acid side chain in an antibody combining site.

67. (Previously presented) The composition of claim 42, wherein said targeting molecule comprises an immunoglobulin heavy chain or portion thereof linked to said J-chain or portion thereof.

68. (Previously presented) The composition of claim 42, wherein said targeting molecule does not comprise an immunoglobulin light chain.

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69. (Previously presented) The composition of claim 68, wherein said targeting molecule comprises an immunoglobulin heavy chain or portion thereof linked to said J-chain or portion thereof.

70. (Previously presented) The composition of claim 42, wherein said targeting molecule does not comprise an immunoglobulin heavy or light chain or portion thereof.

71. (Presently cancelled) The composition of claim 42, wherein said targeting molecule does not comprise full length dimeric IgA.

72. (Presently cancelled) The composition of claim 42, wherein said targeting molecule does not comprise full length IgM.
